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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/716,704      | 11/20/2000  | Eran Inbar           | 12808.10US01        | 6791             |

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| EXAMINER |
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SOUW, BERNARD E

| ART UNIT | PAPER NUMBER |
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2881

DATE MAILED: 01/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|                             |                 |              |
|-----------------------------|-----------------|--------------|
| <b>Offic Action Summary</b> | Application No. | Applicant(s) |
|                             | 09/716,704      | INBAR, ERAN  |
|                             | Examiner        | Art Unit     |
|                             | Bernard E Souw  | 2881         |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 20 November 2000.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-47 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-47 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 20 November 2000 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.  
 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.  
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) The translation of the foreign language provisional application has been received.  
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other:

## DETAILED ACTION

### *Specification*

1. The TITLE of the disclosure is objected to because is too short and not descriptive. Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 6, 14, 15, 18, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Walleston (USPAT # 5,225,828).

2. Regarding claim 1, Walleston discloses an emitter controller 10b, consisting of numerals 42 & 43 as part of the PCB circuit 10 shown in Fig.7 & 8, which is connected to a power source through output terminals 101, 102 & 103 shown in Fig.7 and Fig.8, and recited in Col.5/ll.17-23 & 30-34; and

a power amplifier 44 shown in Fig.8, connected to the controller 10b as part of the PCB circuit 10 shown in Fig.7, to the power source 101/102/103, as shown in Fig.7, and to the emitter 21/22/23 shown in Fig.7, as recited in Col.5/ll.48-57, and wherein

the controller 10b of Fig.8 providing a pulse sequence to the power amplifier 44 (and 52) for operating the emitter 21/22/23, as disclosed in Col.5/II.34-43 and II.59-66, the controller 10b determining the pulse sequence according to an available power voltage level, i.e., at terminals 101/102/103 with a voltage regulator 41 connected to terminals 104/105/106, as recited in Col.5/II.43-50.

3. Claim 14 recites the same limitations as claim 1, except for the addition of an infrared (IR) emitter to the controller system recited in claim 1. Walleston's emitter 21 and 22 shown in Fig.7 are IR emitters, as recited in Col.5/II.53-56.

4. Regarding claims 2 and 15, Walleston's emitter controller 10b is equipped with a voltage regulator 41 connected to the controller 10b and the power source through terminals 101/102/103, as shown in Fig.7 and recited in Col.5/II.30-34.

5. Regarding claims 5 and 18, Walleston's emitter controller 10b is equipped with an indicator 7 (or 58) shown in Fig.7, as recited in Col.4/II.40-67, which is connected to the controller 10b, to the power source through terminals 101/102/103, and to the emitters through terminals 101/102/103, for indicating the mode of operation of the emitter(s) 21/22/23.

6. Regarding claims 6 and 19, Walleston's indicator 7 (or 58) shown in Fig.7 is a visual type indicator, as recited in Col.4/II.40-67.

7. The limitations of claim 20, regarding the interconnections of the power source at output terminals 101, 102 & 103, the controller 10b, and the power amplifier 44, as shown in Fig.7 and 8, is already included in the previously rejected claim 1.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4, 7, 16, 17, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walleston.

Walleston's show all the limitations of claims 3 and 16, as previously applied to claims 2 and 15, except the recitation of a voltage multiplier. A voltage multiplier is known in the art as a device having a purpose of boosting the power output of a controller circuit for high power applications. This Official Notices is supported by Gordon et al. (USPAT #5,661,774) in the form of a HV Rectifier 210 shown in Fig.5, as recited in Col.10/I.I.30-32, by Brendlmaier et al. (USPAT #4,346,343) in voltage amplifier circuit including a FET driver, as recited in Col.4/I.I.8-26, and by Martell (USPAT #5,351,037) in the form of a voltage multiplier circuit coupled to a transformer, as recited in Col. 15/I.I.34-36.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to boost the power output of Walleston's emitter controller system shown in Fig.7 using a conventional voltage multiplier as known in the art, in order to provide enough power as required by the specific emitter type being used, since Walleston's output voltage and power capacity is low.

9. Regarding claims 4 and 17, the provision of a power cut command to the power amplifier to cease operation when the available power voltage is lower than a predetermined minimal voltage level is a conventional provision well known in the art, which does not need to be taught by any prior art. This Official Notice is supported by Ross (USPAT # 6,016,245), as recited in Col.6/ll.13-34, specifically in lines 21-24.

Although Ross uses the device for a different purpose, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art device satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Ross's device is capable of doing what the Applicant is trying to do, then Ross's makes the claim.

10. Regarding claims 7 and 21, the limitation that the pulse sequence periodically heats up the emitter, is a direct consequence of natural law, and hence, unpatentable. Even Walleston's LEDs are heated up to a higher temperature if driven by any current,

no matter how small, whereby the heated temperature is completely irrelevant for not being recited in the claim.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walleston.

Claims 8-13 are method claims directly corresponding to the periodically controlled emitter system recited in claims 1-7, whereby a heating time period in claim 8 corresponds to the recitation of previously rejected claim 7, a cooling time period (claim 9) is inherent to the recitation of periodic heating in claim 7, whereas the step of determining a cooling time period according to the target heating temperature and to the characteristics of the emitter is trivial for being conventional, and also well known in the art. Furthermore, the step of determining the target (i.e., Walleston's IR light-emitting diodes 21 & 22) heating temperature, is conventional and also well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a step of cooling period in addition to a heating period, since a heating process can only be made periodic, if it is also allowed to cool periodically.

One would have been motivated to make the IR emission periodic, e.g., at 6 cps, as suggested by Walleston, since such a periodic rate is particularly noticeable to a human observer, as disclosed by Walleston in col.5/ll.41-42.

- Specifically regarding claims 11 and 12, the step of emitting a periodic infrared radiation is again inherent in Walleston's device in claims 1-7, in case IR emitters are being used (similar to claim 14).

13. Claims 22-36 and 38-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walleston in view of Wood (USPAT # 5,939,726).

Walleston shows all the limitations of claims 22-36 and 38-47, as previously applied to (the parent) claim 14, except for specific claim limitations to be individually addressed as follows.

► Regarding claims 22 and 38, Walleston's infrared emitting LEDs 21 & 22 of Fig.7 are substituted by Wood's filament wire 4, as depicted in Fig. 1A, 2A and 2B, thereby showing:

- (a) a reflective base 5, as recited in Col.3/ll.29-31;
- (b) two conductive poles 2, emerging from the reflective base 5 and electrically insulated from the reflective base 5, as recited in Col.3/ll.26-32, whereby the specific limitation of the 2 poles being electrically insulated is trivial, since otherwise the two would be electrically short-circuited, thereby losing the capability of conducting electrical current and generating heat;

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- (c) a high emissivity wire 4, electrically connected between the two poles 4, emitting IR radiation when conducting electrical current provided through the conductive poles 4, as disclosed in Col.3/II.34-44; and
- (d) a housing consisting of cap 8 and window 7 shown in Fig.1B, as recited in Col.3/II.43-47; wherein
- (e) the reflective base 5 includes a reflective surface in the form of a parabolic reflector, as specifically recited in Col.3/II.29-30.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Walleston's infrared emitting LEDs 21 & 22 in Fig.7 with Wood's high emissivity wire 4, especially in the form of strip metal as specified by Wood in Col.3/II.34-45, provides a greater IR flux and greater energy efficiency at all wavelengths than prior art IR sources of comparable size, as disclosed by Wood in Col.4/II.17-23.

- Regarding claims 23 and 39, Wood's housing consists of cap 8 and window 7 shown in Fig.1B, as recited in Col.3/II.43-47.
- Regarding claims 24 and 40, Wood's high emissivity wire is made of NiCr metal, as specified in Col.3/II.34-45, whereby NiCr wire is known in the art as being a filament wire due to its high electrical as well as high temperature resistance, rendering it highly efficient in converting electrical energy into heat.

► Regarding claims 29, 31, 45 and 47, to form Wood's high emissivity wire in the shape of a helix having either one or a plurality of windings is a mere matter of design choice, using methods & forms that are conventional and also well known in the art. This Official Notice is supported by Thompson (USPAT # 4,430,597) as shown by numeral 37 in Fig.3 and Fig.5, recited in Col.8/ll.25-28, and by Northrup et al. (USPAT # 6,099,148), as shown by numeral 122 in Figs.1, 2, 3 and by numeral 312 in Fig.7, as recited in Col.8/ll.2-8.

Being a mere matter of design choice, the limitations of claims 29, 31, 45 and 47 are thus unpatentable, for involving only routine skill in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form Wood's high emissivity wire in the shape of a helix having either one or a plurality of windings, since the high total length of a helix renders a high total electrical resistance, so the conversion of electrical energy into heat can be more efficient.

► Regarding claims 25-28, 30, 41-44 and 46, Wood's emissivity wire has a diameter that corresponds to an electrical resistance of about the same range as those recited in the claims. The method to calculate the electrical resistance based on the wire's diameter, length and specific resistance of the wire material, is well known to one of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form Wood's emissivity wire in the shape of a filament wire of

specific dimensions, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Generally, differences in (wire) dimensions will not support the patentability of subject matter encompassed by the prior art, unless there is evidence indicating such dimensions are critical.

- ▶ Regarding claims 32-36, the limitations that the housing window is made of material transparent or semitransparent for the working wavelengths of choice, i.e., IR, mid-IR or long (far) IR radiation, is trivial, for it is logical and conventional to use a window transparent to the wavelength (range) being used.
- Specifically regarding claim 36, Wood's housing window 7 shown in Fig.1B is made of either Ge, Si or ZnSe, as recited in Col.2/II.48-50.
  
- ▶ Regarding claim 37, the limitation that the IR window comprises a lens, is not only a mere matter of design choice, but also conventionally known in the art. This Official Notice is supported by Darbee (USPAT # 5,422,783), showing in Fig. 7 a lens cap130 to amplify the light emitting signal, as recited in Col.8/II.5-7, and further, by Savage, Jr. (USPAT # 4,491,900), as shown by lens 11 in Fig.9, and disclosed in Col.3/II.17-20.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw whose telephone number is 703 305 0149. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 703 308 4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9318 for regular communications and 703 872 9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

bes

December 23, 2002



JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
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